Mathematics, Grade 6—Scoring Guide

A2A6

Sam's age is one year more than half his mother's age. If Sam's mother is *m* years old, which expression represents Sam's age?

      A. $2m + 1$

      B. $(\frac{1}{2})(m + 1)$

      C. $(\frac{1}{2})m + 1$*

      D. $(\frac{1}{2})m - 1$

G3A6

Inspector Ivan Aklue stumbled across a mysterious machine. When he pressed a button on the machine, he was suddenly turned upside down. When he pressed the button again, the machine turned him right-side up again, as shown.

Which term best describes what the mysterious machine did to the Inspector?

      A. translated
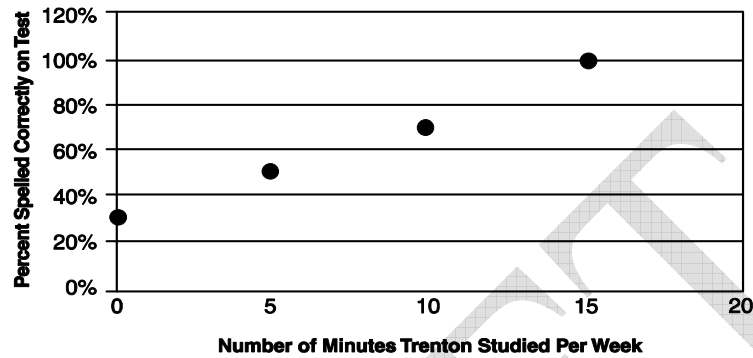   B. rotated*
      C. transference
      D. slid

A2A6

Which of the following represents four times the sum of *n* and 6?

      A. $4n + 6$
      B. $4(n - 6)$
      C. $6(n + 4)$
      D. $4(n + 6)$*

A1C6

Which table represents the relationship the graph shows between the number of minutes per week that Trenton studied and the percent of words he spelled correctly on his weekly spelling tests?

Spelling Study Graph

A.

	Week 1	Week 2	Week 3	Week 4
Number of minutes per week that Trenton studied	0	10	20	30
Percent of words spelled correctly on spelling test	40%	50%	60%	60%

B.

|	Week 1	Week 2	Week 3	Week 4
Number of minutes per week that Trenton studied	0	10	20	30
Percent of words spelled correctly on spelling test	40%	50%	60%	70%

C.

	Week 1	Week 2	Week 3	Week 4
Number of minutes per week that Trenton studied	0	5	10	15
Percent of words spelled correctly on spelling test	40%	45%	50%	55%

D. *

	Week 1	Week 2	Week 3	Week 4
Number of minutes per week that Trenton studied	0	5	10	15
Percent of words spelled correctly on spelling test	30%	50%	70%	100%

G1B6

If a new triangle (RST) is drawn on a 3:1 scale to triangle *ABC,* which statement is ***false***?
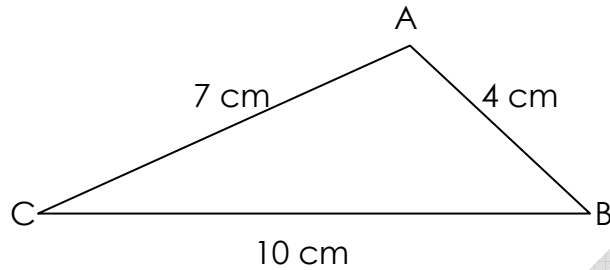
A. Triangle *ABC* and triangle RST have equal corresponding angles.
B. Angle *ABC* is 3 times larger than angle RST.*
C. Segment RT is 21 cm long.
D. Segment ST is 3 times longer than segment *BC.*

G3A6

Kayla designed this "MC" logo for the Math Club's T-shirts:

Kayla had drawn the logo on a transparency sheet to show it to her class, but the image that the overhead projector showed on the screen was:

Which transformation occurred in the logo's image?

A. reflection*
B. translation
C. rotation
D. transference

G1A6

Stephanie drew a square on her graph paper. Then she drew all the possible diagonals contained within her square. Which statement about Stephanie's drawing is definitely *false*?

    A. Each side of Stephanie's square is 4 units long.
    B. The diagonals that Stephanie drew are all congruent to each other.
    C. Stephanie drew 3 diagonals within her square.*
    D. All of the diagonals intersect at 90° angles.

A2B6

Which of the following completes the equation to show the distributive property?

$$(3 \times 12) + (3 \times 4) = 3 \times \underline{\hspace{1cm}}$$

    A. (12×4)
    B. $(12 - 4)$
    C. (12)
    D. $(12 + 4)$*

A2A6

Mary has three less than twice as many pairs of shoes as Jack. If Jack has j pairs of shoes, which expression shows how many pairs of shows Mary has?

    A. $2(j - 3)$
    B. $2j - 3$*
    C. $3 - 2j$
    D. $2(j + 3)$

G4B6

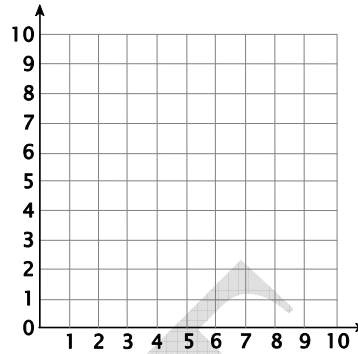Point B lies between points A and C, and all three points lie on line AC. Which of the following is *not* true?

    A. Point B lies on segment AC.
    B. Point C lies on ray AB.
    C. Point A lies on ray BC. *
    D. Point C lies on line AB.

G2A6
Which of the following full sets of coordinate pairs mark the vertices of a triangle?

A. (0, 0), (3, 4), and (6, 8)
B. (2, 2), (2, 4), (6, 2), and (6, 4)
C. (4, 1), (3, 2), and (2, 3)
D. (0, 1), (3, 4), and (6, 2)*

A1C6
Claudia is a stamp collector who just paid 37 cents for a rare stamp that she expects will increase in value by 37 cents per each year in the future. Which of these representations would best help Claudia determine the value (*v*) of her stamp after 20 years?

A. The value of the stamp = 20 times 37 cents.

B. *

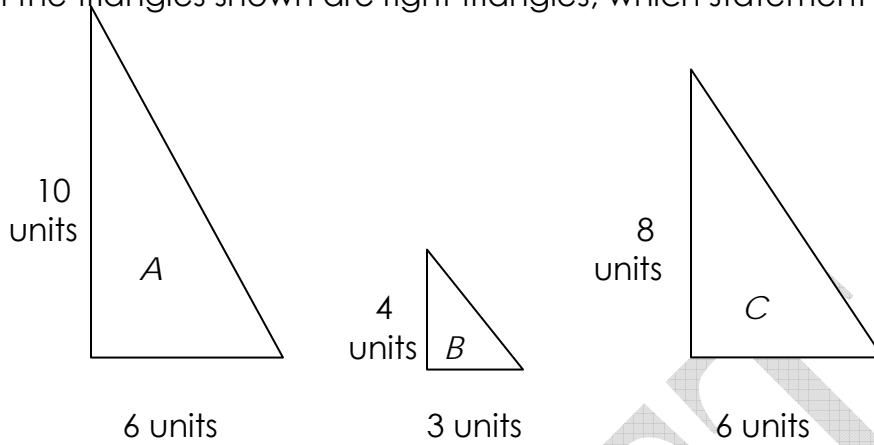| Years after Purchase	Value of Stamp
1	$0.74
2	$1.11
3	$1.48
4	$1.85
5	$2.22
N	$?

C.
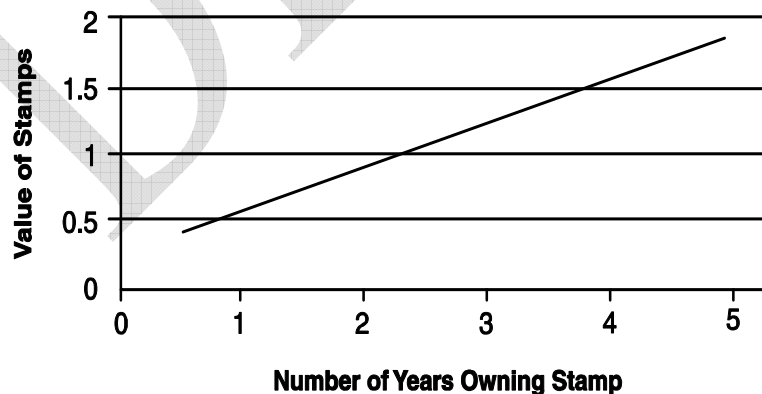
E. *v* = 37 cents + 20 years

G1B6

If all the triangles shown are right triangles, which statement is *false*?

10
units

A

6 units

4
units | *B*

3 units

8
units

C

6 units

A. Triangle *A* and triangle *B* are similar. *
B. Triangle *B* and triangle *C* have congruent angles.
C. Triangle *C* and triangle *B* are similar.
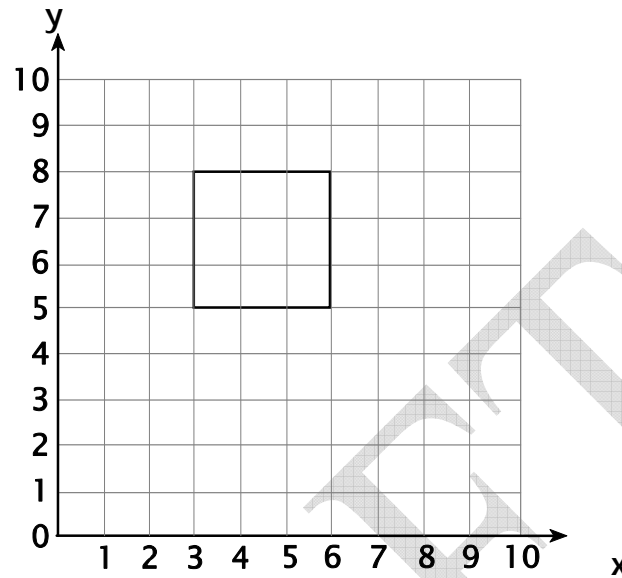D. Triangle *B*'s height has a 1:2 ratio to triangle *C*'s height.

G3A6

Which type of transformation turned Figure 1 into Figure 2?

Figure 1   Figure 2
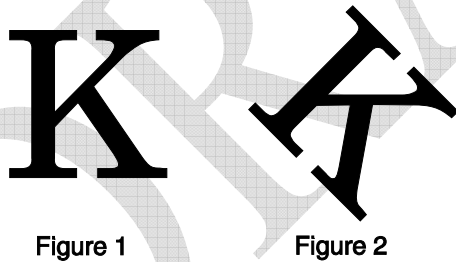
A. reflection
B. rotation*
C. translation
D. dilation

Use the following figure to answer question _____.

G2A6

A square is drawn on the grid. The coordinate pairs for its vertices are: (3, 5), (6, 5), (3, 8), and (6, 8). Draw a larger square on the graph and label each of the larger square's vertices with its respective coordinate pairs.

List two characteristics that show why these shapes are rectangles are squares.

Characteristic 1: _____
Characteristic 2: _____

Exemplary Response: Many possible larger squares can be drawn on the grid. Characteristics: 4 congruent sides and 4 right angles
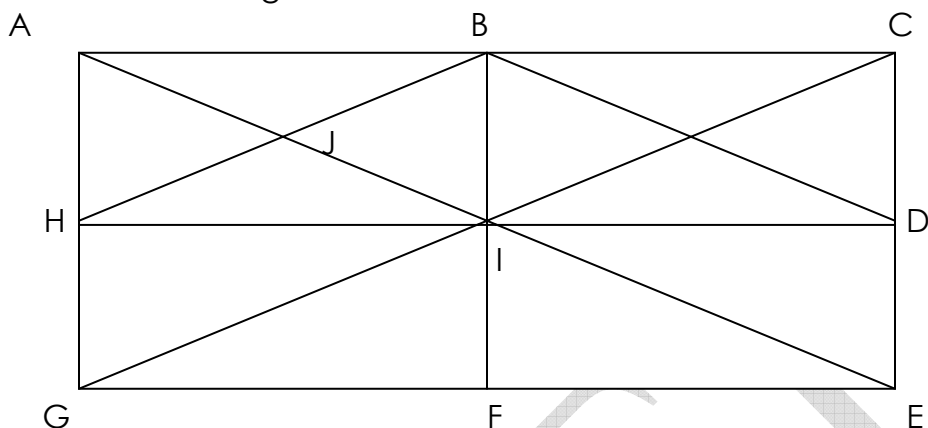
Scoring Guide:

2 points—Correctly draws a larger square with vertices correctly labeled
    and lists two correct characteristics of squares
1 point-- Correctly draws a larger square with vertices correctly labeled
    or lists two correct characteristics of squares
0 points--Other

G4B6

Use the letters shown at each vertex of this figure to list 4 triangles from the figure that are **not** congruent to each other.

1. _____ 2. _____

3. _____ 4. _____

Exemplary response: Non-congruent triangles include: IFG, JHI, CIE, DIE, GAC, AIC, etc.

Scoring guide:
2 points—Correctly identifies 4 non-congruent triangles
1 point—Correctly identifies 3 non-congruent triangles
0 points-Other

A1B6

Robert has been offered two part-time jobs, and he is deciding which one to take.

The first job pays $10 per hour, but only allows him 20 hours of work per week. **After** 12 weeks, he would receive a raise of $1 per hour.

The second job pays $7 per hour, but allows him 30 hours of work per week. **After** each 6 weeks of work, he would receive a raise of $1 per hour. Complete the table to show Robert's projected **weekly income**.

Week	Amount Earned	
	Job 1	Job 2
1	$200	$210
2	$200	$210
3	$200	$210
4	$200	$210
5	$200	$210
6	$200	$210
7	$200	$240
8	$200	$240
9	$200	$240
10	$200	$240
11	$200	$240
12	$200	$240

Using the information from the chart above, determine how much Robert could earn at each job **for week 13** if he worked the maximum hours each job allowed. Show your work.

Job 1 at week 13: $ _____ Job 2 at week 13: $ _____
Exemplary response: Job 1= $220, Job 2=$270

Scoring Guide:
2 points—Correctly completes the chart **and** identifies $220 for job 1 and
          $270 for job 2.
1 point-- Correctly completes the chart **or** identifies $220 for job 1 and
          $270 for job 2.
0 points--Other

A3A6
From the information in the table, what is the cost of 12 apples? Explain
your answer.

Angie's Apples (today's prices)
5 apples for $1.25
10 apples for 2.50
15 apples for 3.75
20 apples for $5.00

Cost of 12 apples: $ _____

Explanation:

Exemplary response: 12 apples would cost $3.00; division for any line on
the table shows that each apple costs 25 cents and 25 x 12 = $3;
proportions may also be used to determine the cost.

Scoring guide:
2 points—Correct answer of $3.00 for 12 apples **and** work to support the
          answer.
1 point-- Correct answer of $3.00 for 12 apples **and** no work to support the
          answer.
0 points--Other

A1B6

Brianne's math class is cutting up a square cake in order to demonstrate fractional parts. Each cut the class makes is numbered in the diagram below. Each cut divides the piece in half that it cuts across.
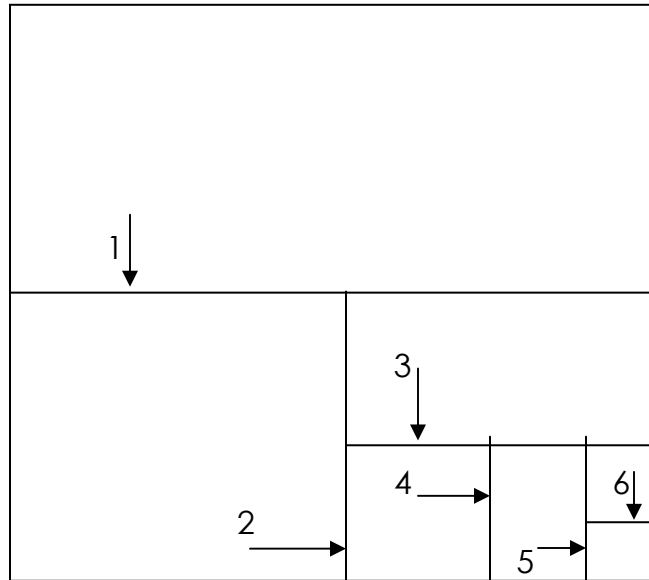
Complete the chart by inserting fractions representing the smallest fraction of the whole cake that resulted after each cut was made.

Cut Number	0	1	2	3	4	5	6
Size of Smallest Fractional Piece Created	whole cake	1/2					

Describe the pattern within the fractions:

Exemplary response: Correctly completed chart of ¼, 1/8, 1/16, 1/32, and 1/64 and identifies the pattern as the pattern doubling each time.
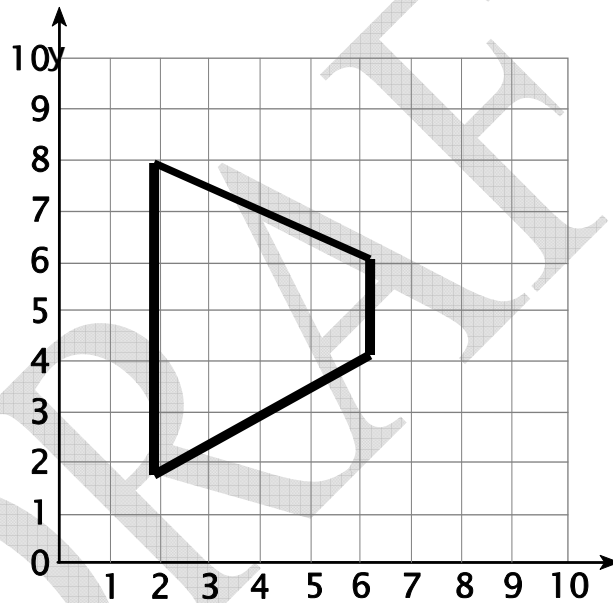Scoring Guide:
2 points—Correctly completes the chart **and** correctly describes the
           pattern
1 point-- Correctly completes the chart **or** correctly describes the
           pattern
0 points--Other

G2A6
On the grid below, graph these ordered pairs: (2, 2), (2, 8), (6, 4), and (6, 6). Then connect these points to form a special type of quadrilateral. Tell the name of the quadrilateral.

Name of quadrilateral: _____

Exemplary response: Correctly graphed points and identifies the figure as a trapezoid.

Scoring Guide:
2 points—Figure is graphed correctly **and** correctly identified as a
           trapezoid
1 points—Figure is graphed correctly
0 points—Other

A36

Steve joined a comic book club that chares $1 for each comic book that he orders. The club adds a $3 shipping fee to each order, no matter how many comic books Steve orders.

Draw a table that shows Steve's total cost for placing orders of 1, 2, 3, 4, or 5 comic books.

Explain whether the number of comic books that Steve orders at any one time has a linear relationship to the total cost for that order.

Exemplary response: Creates and completes a table with the correct values of 1 book = $4; 2 books=$5, 3 books =$6, 4 books=$7, and 5 books=$8 and explains that the relationship is linear because there is a constant rate of change in the number of books and the cost of books—for each additional comic book ordered, the total cost increase by $1.

Scoring guide:

2 points—Creates and completes a correct table **and** includes a valid explanation of the linear relationship

1 points-- Creates and completes a correct table **or** includes a valid explanation of the linear relationship

0 points—Other